Managing gestational diabetes

What is gestational diabetes?

Gestational diabetes mellitus (GDM) affects 12–14% of all Australian pregnancies. GDM is usually detected around 24–28 weeks gestation with an Oral Glucose Tolerance Test (OGTT).

It occurs when the placental hormones stop working properly making your blood glucose levels (BGLs) higher than usual.

When BGLs are too high, glucose can cross the placenta causing your baby to have high BGLs too. These high BGLs can cause your baby to produce more insulin, which can increase growth impacting on birth and delivery.

By working with your diabetes team — including your Obstetrician, Diabetes Nurse Educator, Dietitian and Endocrinologist (if required) — you can keep your BGLs under control and help to prevent problems during your pregnancy. Our ultimate goal is to ensure the health of you and your baby.

Risk factors for GDM

The following factors increase the risk of developing GDM:

- Being over 35 years of age.
- Having a family history of type 2 diabetes.
- Being from particular ethnic backgrounds including Indigenous Australians and Torres Strait Islanders, Indian, Chinese, Vietnamese, Middle Eastern, Polynesian and Melanesian.
- Having previous gestational diabetes.
- Previous delivery of a large baby (>4.5kg).
- Excess body weight or gaining too much weight in the first half of pregnancy.
- Having Polycystic Ovarian Syndrome (PCOS).
- Taking some antipsychotic or steroid medications.

References

The Australian Diabetes Society Life after gestational diabetes mellitus booklet (diabetessociety.com.au)

**Risks to mother**

Having GDM can increase the risk of:
- caesarian delivery
- pre-term delivery
- pre-eclampsia (high blood pressure).

As well as the risks during pregnancy and birth, women with GDM have a:
- 30% greater chance of GDM in future pregnancies
- 50% greater chance of developing type 2 diabetes within 10 years.

**Risks to my baby**

When you find out that you have GDM, you may be worried about the health of your baby. Having GDM does not mean your baby will be born with diabetes.

Having GDM can increase the risk of:
- excess birth weight
- increased chance of caesarian delivery
- pre-term delivery with respiratory distress
- hypoglycaemia (low BGLs) after delivery.

If your BGLs have been high, when your baby is born there is a possibility of their BGLs being low due to the extra insulin the baby has been producing.

The baby’s BGL will be checked at birth and if low, the baby may be admitted to the Special Care Nursery for supplemental feeding.

These risks can be reduced and you can have a healthy baby if your GDM is well managed.

**How is GDM managed?**

**Monitoring BGLs**

Your Diabetes Nurse Educator will set you up with a blood glucose testing machine (glucometer).

If you are eligible, you will also be registered for the NDSS (National Diabetes Services Scheme) to enable you to purchase glucometer strips at a subsidised rate.

You will be required to test your BGLs four times a day until the delivery of your baby.

The required testing times are:
- before breakfast
- two hours after you start breakfast
- two hours after you start lunch
- two hours after you start dinner.

**Target BGLs are:**
Before breakfast — 5mmol/L or less
Two hours after meals — 6.7mmol/L or less
A Dietitian will advise you on the best food choices and portion sizes to help you keep your BGLs under control, and also meet your nutritional requirements for pregnancy.

**Healthy eating**

**Physical activity**

Regular physical activity helps lower BGLs, especially after meals and is beneficial for your overall health.

All women with GDM should check with their Obstetrician prior to starting or continuing any form of physical activity.

It is recommended you aim for 30 minutes of physical activity on a daily basis. This does not need to be in one session, it can be broken up throughout the day (e.g. 3 sessions of 10 minutes).

Types of exercise can include:

- walking
- swimming
- aqua or low-impact aerobics
- pilates
- bike riding (moving or stationary bike)
- taking the stairs
- parking your car at the back of the shopping centre and walking
- getting off public transport at the prior stop
- walking to school or work
- housework and gardening.

Jogging or higher intensity exercises should not be commenced during pregnancy unless you were already doing it before you were pregnant. Discuss further with your Obstetrician or midwife if you plan to continue higher intensity activity into the 3rd trimester.
What if my BGLs are above target?

- Did you test your BGL less than 2 hours from the start of your meal?
- Did you eat too large a portion or high GI carbohydrate foods?
- Did you consume a carbohydrate food or drink between your meal and BGL test time?
- Did you forget to wash your hands prior to testing your BGL?
- Were you less physically active than usual?
- Have you been unwell with a cold or infection?

If you answered no to all questions, you are doing the best you can, but your BGL is likely to be above target due to pregnancy hormones. Make contact with a Diabetes Nurse Educator.

If you answered yes to a question, that factor may have caused your BGL to be higher than usual. Next time try to change this behaviour to ensure accurate BGL testing and to help achieve targets.

If your BGLs are above target on two occasions over a week, at the same time of day, you may be referred to an Endocrinologist.

Medication may be started to help control your BGLs. Any medication is in addition to healthy eating and physical activity, so continue to be active and choose appropriate portions of low GI foods.

### Insulin

Insulin is used to control your BGLs and help keep them in target.

Insulin does not cross the placenta or affect your baby which is why this form of medication is often used.

If you are required to commence insulin your Diabetes Nurse Educator will provide information on:

- how the insulin works
- the injection device and technique
- insulin doses
- when to inject insulin.

Insulin is usually stopped when you have delivered your baby. Your Endocrinologist or Diabetes Nurse Educator will give you advice about your insulin doses before delivery or if you have a cesarian booked.

### Metformin

Metformin is an oral tablet used to treat diabetes. It helps the body become more sensitive to insulin and reduces the amount of glucose released from the liver.
Healthy eating for GDM

Healthy eating specific for GDM can help achieve good blood glucose control and healthy weight gain for mother and baby.

What are carbohydrates?

- Carbohydrate is found in a variety of food and drink and provides the body with fuel (energy).
- Carbohydrate breaks down into glucose during digestion and raises BGLs.
- Many foods containing carbohydrate also provide dietary fibre, vitamins and minerals.
- The amount and type of carbohydrate you eat will affect your BGLs.

Healthy carbohydrate choices (best choice):

- Wholegrain bread, Crispbread
- Wholegrain breakfast cereal
- Grains (e.g. Barley, Quinoa)
- Pasta, Noodles
- Rice
- Wholegrain and Wholemeal flour
- Lentils and Legumes
- Starch vegetables (e.g. Potato, Sweet Potato and Corn)
- Fruit
- Milk, Yoghurt

Less healthy carbohydrate choices (avoid where possible):

- Biscuits
- Cakes, Pastry
- Sugar, Agave syrup, Rice malt syrup, Coconut sugar
- Jam, Honey, Maple syrup
- Ice-cream, Custard
- Chocolate, Confectionary
- Regular soft drink, Cordial
- Fruit juice
- Potato crisps, Corn chips

Foods that do not contain significant carbohydrate (will not affect BGLs):

- Meat, Chicken, Fish, Tofu, Eggs, Cheese
- Oil, Avocado, Nuts
- Sugar-free drinks, Artificial sweeteners
- Non-starch vegetables: Lettuce, Tomato, Broccoli, Zucchini, Bok Choy, Eggplant, Okra, Carrots etc.
Glycemic Index

Glycemic Index (GI) is a measure of how quickly or slowly a carbohydrate food is digested and raises BGLs.

Higher GI carbohydrates increase blood glucose levels more quickly.
- Choose these less often.

Lower GI carbohydrates increase blood glucose levels more slowly.
- These are the preferred choice.

Lower and higher glycaemic index choices:

The following food amounts are guides for main meals and may be individualised by your Dietitian.

<table>
<thead>
<tr>
<th>Food</th>
<th>Lower GI</th>
<th>Higher GI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast cereal</strong></td>
<td>• Untoasted muesli &lt;br&gt;• Rolled oats (Porridge) &lt;br&gt;• Wholegrain or Multigrain high fibre cereals &lt;br&gt;• Uncle Toby’s Oatbrits or Multigrain Weetbix</td>
<td>• Instant oats (Porridge) &lt;br&gt;• Sultana Bran &lt;br&gt;• Lite n Tasty &lt;br&gt;• Just Right &lt;br&gt;• Cornflakes &lt;br&gt;• Rice Bubbles &lt;br&gt;• Puffed wheat</td>
</tr>
<tr>
<td>½ cup muesli or oats</td>
<td>1 cup flake type cereal &lt;br&gt;2 cereal biscuits</td>
<td></td>
</tr>
<tr>
<td><strong>Bread</strong></td>
<td>• Multigrain &lt;br&gt;• Traditional sourdough &lt;br&gt;• Pumpernickel &lt;br&gt;• Baker’s Delight low GI white &lt;br&gt;Flatbreads: &lt;br&gt;• Wholemeal pita &lt;br&gt;• Multigrain wraps &lt;br&gt;• Roti / Naan / Chappati made with whole wheat atta or chickpea flour</td>
<td>• White &lt;br&gt;• Wholemeal &lt;br&gt;• Dark or Light rye &lt;br&gt;• Bagel &lt;br&gt;• Turkish, Focaccia &lt;br&gt;• White pita &lt;br&gt;• Crumpets &lt;br&gt;• English muffins &lt;br&gt;• White or Wholemeal flour based Roti / Naan / Chapatti</td>
</tr>
<tr>
<td>1–2 slices</td>
<td>1–2 wraps &lt;br&gt;1 small roti / chapatti</td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>Lower GI</td>
<td>Higher GI</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>Pasta and Noodles</td>
<td>✓ Wheat pasta</td>
<td>❖ Corn pasta, Rice pasta</td>
</tr>
<tr>
<td></td>
<td>✓ Vermicelli</td>
<td>❖ Potato gnocchi</td>
</tr>
<tr>
<td></td>
<td>✓ Mung bean noodles</td>
<td>❖ Udon noodles</td>
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<tr>
<td></td>
<td>✓ Soba noodles</td>
<td>❖ Instant noodles</td>
</tr>
<tr>
<td></td>
<td>✓ Rice noodles</td>
<td>❖ Canned spaghetti</td>
</tr>
<tr>
<td></td>
<td>1 cup cooked, 50g dry</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>✓ Long grain (e.g. Basmati, Mahatma, Doongara)</td>
<td>❖ Jasmine</td>
</tr>
<tr>
<td></td>
<td>✓ Wild</td>
<td>❖ Medium grain (white or brown)</td>
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<tr>
<td></td>
<td>✓ Moolgiri</td>
<td>❖ Arborio (risotto)</td>
</tr>
<tr>
<td></td>
<td>✓ Black, Red</td>
<td>❖ White rice congee</td>
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<tr>
<td></td>
<td>✓ Chia and quinoa rice blends</td>
<td>❖ Sushi rice</td>
</tr>
<tr>
<td></td>
<td>2/3 cup cooked, 40g dry</td>
<td></td>
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<tr>
<td>Grains</td>
<td>✓ Quinoa, Barley</td>
<td>❖ Polenta</td>
</tr>
<tr>
<td></td>
<td>✓ Bulghur (cracked wheat)</td>
<td>❖ Cous cous</td>
</tr>
<tr>
<td></td>
<td>✓ Pearl or Israeli cous cous</td>
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<tr>
<td></td>
<td>✓ Buckwheat, Freekeh</td>
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<tr>
<td></td>
<td>✓ Semolina</td>
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<tr>
<td></td>
<td>2/3–1 cup cooked</td>
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<tr>
<td>Lentils and Legumes</td>
<td>✓ All dried or canned (e.g. Kidney beans, Chickpeas, Brown lentils, Baked beans)</td>
<td>❖ Potato: all other white varieties (e.g. Desiree, New, Pontiac, Sebago etc.)</td>
</tr>
<tr>
<td></td>
<td>150g cooked or canned</td>
<td>❖ Sweet potato (purple skin, Kumara)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starchy vegetables</td>
<td><strong>Potato:</strong></td>
<td></td>
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<tr>
<td></td>
<td>✓ White potato (e.g. Nicola)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Sweet potato (orange flesh)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Yam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eat potatoes with skin on to lower GI</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Corn:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Corn cob</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Corn kernels</td>
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<tr>
<td></td>
<td>200g potato</td>
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</tr>
<tr>
<td></td>
<td>½ cup / 75g kernels</td>
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<tr>
<td></td>
<td>1 cob corn</td>
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<tr>
<td>Note:</td>
<td>Most other salad and stir fry vegetables contain very little or no carbohydrate and do not have a GI value.</td>
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<tr>
<td></td>
<td>Some semi-starch vegetables (e.g. pumpkin, peas, carrot, parsnip, broad beans and beetroot) have a GI value, but rarely elevate blood glucose unless consumed in large amounts (more than 200g).</td>
<td></td>
</tr>
</tbody>
</table>
Eating snacks allows you to spread your carbohydrate intake over the day to help control BGLs. It is important that carbohydrate snacks are consumed after you have completed your post-meal BGL test. This prevents the snack from impacting on your test result.

Below are some healthy snack options that can be eaten between meals.

### Carbohydrate containing snacks
- 1 handful sized fruit or 2 smaller sized fruit
- 1 small tub reduced fat yoghurt OR 1 glass of reduced fat milk — dairy or soy
- 4 Vitawheat crackers with 1 tablespoon of avocado or peanut butter
- 1 Muesli bar (e.g. Uncle Tobys Farmer’s Pick)
- 1 small packet of roasted chickpeas (e.g. Happy Snack Company Roasted Chickpeas)
- 1 cup air popped popcorn

<table>
<thead>
<tr>
<th>Food</th>
<th>Lower GI</th>
<th>Higher GI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Apple, Pear</td>
<td>✓ Cantaloupe</td>
</tr>
<tr>
<td></td>
<td>✓ Banana</td>
<td>✓ Watermelon</td>
</tr>
<tr>
<td></td>
<td>✓ Nectarine, Peach, Apricot, Plum</td>
<td>✓ Lychee (canned in syrup)</td>
</tr>
<tr>
<td></td>
<td>✓ Orange, Mandarin, Grapefruit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Berries, Grapes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Kiwi fruit, Figs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Pineapple, Paw paw, Mango</td>
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<tr>
<td></td>
<td><strong>Note:</strong> Saunders, raspberries, blackberries and passionfruit have minimal carbohydrate compared to other fruits and have less effect on blood glucose levels.</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk and Yoghurt</td>
<td>✓ Milk, Yoghurt</td>
<td>✓ Sweetened condensed milk</td>
</tr>
<tr>
<td></td>
<td>✓ Soy milk, Soy yoghurt</td>
<td>✓ Rice milk</td>
</tr>
<tr>
<td></td>
<td>✓ Almond milk</td>
<td>✓ Oat milk</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Choose reduced fat, reduced sugar varieties</td>
<td></td>
</tr>
<tr>
<td>Crispbread</td>
<td>✓ Vita-Weat 9 Grain</td>
<td>✓ Rice and water crackers</td>
</tr>
<tr>
<td></td>
<td>✓ Ryvita Multigrain</td>
<td>✓ Salada, Sao</td>
</tr>
<tr>
<td></td>
<td>✓ Vita Grain Linseed and Soy</td>
<td>✓ Corn thins, Rice cakes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Kavli, Cruskits, Matza</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Pretzels</td>
</tr>
</tbody>
</table>
Non-carbohydrate containing snacks

Can be eaten in addition to carbohydrate snack if you are hungry

- Small handful nuts (e.g. almond, walnut, macadamia, brazil)
  Note: peanut, cashew and pistachio nuts contain more carbohydrate
- ¼ cup of mixed seeds (e.g. sunflower, pumpkin seeds)
- 1 small can of tuna, salmon, sardines or chicken
- 1 hard-boiled egg
- Half a small avocado
- 1-2 slices of reduced fat cheese
- Vegetable sticks (e.g. celery, carrot, celery, cucumber, capsicum)
- Vegetable soup (low carbohydrate veg) or Miso soup

Balance your carbohydrate portion at meals with protein and non-starchy vegetables.

Low-GI carbohydrate (¼ plate)
Pasta, rice sweet potato, corn, lentils, legumes and bread

Lean protein (¼ plate)
Trimmed meat, skinless chicken, fish, seafood, tofu, egg

Portion = Palm size

Vegetables (½ plate)
Raw or cooked:
Carrot, broccoli, peas, capsicum, cucumber, beans, beetroot, cabbage, bok choy, eggplant, lettuce, spinach, mushrooms, tomato, onion etc.

Portion = 2 open hands
<table>
<thead>
<tr>
<th>Meal plan options</th>
<th></th>
</tr>
</thead>
</table>
| **Breakfast** | 2 slices grain toast, 2 teaspoons peanut butter or 1 tablespoon avocado  
1 cup reduced fat milk |
| Morning tea | 1 small banana |
| Lunch | Half 420g can of legumes (e.g. bean mix) and Half 420g can corn kernels  
Small can tuna or 2 boiled eggs  
Salad vegetables — rocket, cucumber, tomato etc.  
2 kiwi fruit or 1 apple |
| Afternoon tea | 4 vitawheat crackers, 2 slices reduced fat cheese |
| Dinner | 1 cup cooked pasta with Beef Bolognaise or Spinach & nut pesto  
Side salad or steamed green vegetables |
| Supper | 1 small tub reduced fat yoghurt |

|  |
|-------------------|---|
| **Breakfast** | 1 cup Kellogg’s Guardian cereal, reduced fat milk |
| Morning Tea | 1 apple, 1 small handful of nuts |
| Lunch | Toasted Sandwich — 2 slices grain bread  
2 slices reduced fat cheese, salad vegetables — lettuce, capsicum, tomato etc.  
1 orange or 2 small mandarins |
| Afternoon Tea | 1 small tub reduced fat yoghurt |
| Dinner | 200g sweet potato  
Grilled skinless chicken or Salmon  
Vegetables — carrot, broccoli, cauliflower etc. |
| Supper | 1 muesli bar (e.g. Uncle Toby’s Farmer’s Pick) |

|  |
|-------------------|---|
| **Breakfast** | ½ cup rolled raw oats (1 cup cooked) with reduced fat milk and 1 small banana |
| Morning Tea | 1 small tub reduced fat yoghurt |
| Lunch | 1 medium size wholemeal chapatti bread or 1 slice grain bread  
Lentil dahl and vegetable curry (no potato) |
| Afternoon Tea | ½ medium size mango |
| Dinner | 1 cup cooked basmati rice  
Lamb or Paneer curry  
Side dish cooked vegetables (e.g. cauliflower, green beans, spinach) |
| Supper | 1 cup reduced fat milk |

|  |
|-------------------|---|
| **Breakfast** | 1 cup Congee (rice porridge) using Low GI rice or  
1 vegetable pancake (using wholemeal flour)  
1 glass of reduced fat dairy or soy milk |
| Morning Tea | 1 pear, 1 small handful of nuts |
| Lunch | 1 cup cooked rice noodles (stir fry or soup)  
Stir-fry chicken or Egg omelette with vegetables (e.g. snowpea, mushroom, capsicum) |
| Afternoon Tea | 1 cup reduced fat dairy or soy milk |
| Dinner | 4 dumplings (average size) or 1 cup cooked Low GI rice with Beef or Tofu and  
Vegetables — bok choy, broccoli, cabbage etc. |
| Supper | 2 small mandarin |
Nutrition considerations for healthy pregnancy

Why not cut out all carbohydrate?

Over-restricting carbohydrates in an attempt to reduce BGLs is not recommended as it can be harmful to the health of both mother and baby.

Carbohydrates are your body’s main energy source. Without carbohydrate, your body starts breaking down fat to make energy. Breaking down fat produces ketones. Ketones can affect the neurological (brain and nerve) development of the baby.

Cutting out all carbohydrate foods can cause inadequate fibre, vitamin and mineral intake, such as thiamin, folate, magnesium, calcium and iodine.

Healthy weight gain during pregnancy

Excess weight gain during pregnancy can make managing BGLs during pregnancy more difficult and can increase the risk of complications at delivery.

For women who are underweight at the time of conception, extra weight gain may be required to support the baby’s growth during pregnancy and breastfeeding after delivery.

<table>
<thead>
<tr>
<th>Pre-pregnancy maternal weight range</th>
<th>BMI (kg/m²)</th>
<th>Maternal weight gain during pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than 18.5</td>
<td>12.5–18kg</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>18.5–24.9</td>
<td>11.5–16kg</td>
</tr>
<tr>
<td>Overweight</td>
<td>25.0–29.9</td>
<td>7.0–11.5kg</td>
</tr>
<tr>
<td>Obese</td>
<td>More than 30</td>
<td>5.0–9.0kg</td>
</tr>
</tbody>
</table>

Source: New Recommendations for Total and Rate of Weight Gain during Pregnancy Institute of Medicine 2010.

Additional weight gain is expected for mothers pregnant with twins or triplets. Discuss your individual weight gain expectations with your doctor.

Multivitamin supplements

A multivitamin supplement is commonly recommended during pregnancy. Discuss your requirements with your treating doctor and dietitian.

Multivitamins not formulated specifically for pregnancy are not recommended as there is a danger of excess intake of Vitamin A, Vitamin D and Vitamin B6, but inadequate iodine and iron.

A supplement containing at least 150ug iodine is recommended for most pregnant women in the third trimester.

If you have a thyroid condition or haemochromatosis, discuss suitable supplementation with your treating doctor before taking any supplement containing iodine or iron.

Suitable Multivitamins for Pre-conception and Pregnancy include:

**Cenovis** Once Daily Pregnancy + Breastfeeding Multi

**Elevit**

**Ethical Nutrients** Pregnancy Support

**Fefol** Multi-Preg

**Nature’s Own** Pregnancy Platinum

**Swisse** Pregnancy+ Ultivite
Caffeine

Consuming excessive caffeine may increase the risk of pregnancy complications. Limit your daily caffeine intake to 200mg or less per day during pregnancy and breastfeeding.

<table>
<thead>
<tr>
<th>Product</th>
<th>Average Serve</th>
<th>Caffeine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decaffeinated coffee</td>
<td>1 teaspoon</td>
<td>3mg</td>
</tr>
<tr>
<td>Instant coffee</td>
<td>1 teaspoon</td>
<td>60mg</td>
</tr>
<tr>
<td>Espresso coffee</td>
<td>1 regular shot</td>
<td>90mg</td>
</tr>
<tr>
<td>Herbal tea</td>
<td>1 cup/tea bag</td>
<td>0mg</td>
</tr>
<tr>
<td>Green tea</td>
<td>1 cup/tea bag</td>
<td>30mg</td>
</tr>
<tr>
<td>Black tea</td>
<td>1 cup/tea bag</td>
<td>50mg</td>
</tr>
<tr>
<td>Hot chocolate / Cocoa</td>
<td>1 cup</td>
<td>10–70mg</td>
</tr>
<tr>
<td>Cola drinks</td>
<td>500ml</td>
<td>40mg</td>
</tr>
<tr>
<td>Chocolate</td>
<td>60g</td>
<td>40mg</td>
</tr>
<tr>
<td>Energy drinks</td>
<td>1 can (230–250ml)</td>
<td>70–85mg</td>
</tr>
</tbody>
</table>

Sugar and artificial sweeteners

Limiting foods and drinks with added sugar (such as soft drink and lollies) is advised. Too much added sugar may make control of BGLs more difficult and contribute to excess weight gain during pregnancy.

Artificial sweeteners (e.g. Equal or Splenda) or natural sweeteners (e.g. stevia) and artificially sweetened products (e.g. diet soft drink, sugar free gum) are safe alternatives to sugar, and food and drink containing added sugar.

Iron

A mother’s iron requirements increase during pregnancy. All pregnant women should have their iron levels tested at 28 weeks to check for iron deficiency.

Iron rich foods include:
- Lean red meat, poultry and fish contain haem iron which is well absorbed.
- Legumes and lentils, grains, nuts, green leafy vegetables and iron fortified cereals contain non-haem iron which is less well absorbed.

To maximise iron absorption, combine foods that are rich in iron with foods that are rich in vitamin C, such as green leafy vegetables, red capsicum or parsley.

Tea, coffee and wheat bran can reduce iron absorption. Try to include a 30 minute break between consuming tea, coffee or wheat bran and eating an iron rich meal or taking an iron supplement.
During pregnancy extra precautions for food hygiene (safe cooking and storage) are strongly recommended to reduce the risk of food borne infections.

Pregnant women should avoid foods at ‘high risk’ of contamination to reduce the risk of miscarriage, stillbirth or premature labour.

Examples of some high and lower risk foods:

<table>
<thead>
<tr>
<th>Food type</th>
<th>High risk/ Avoid</th>
<th>Lower risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold meat</td>
<td>Packaged and unpackaged ready-to-eat from deli, sandwich bars, etc.</td>
<td>Home cooked if stored in fridge and used within one day of cooking</td>
</tr>
<tr>
<td>Cold or hot cooked chicken</td>
<td>Purchased (whole, portions or diced) ready-to-eat</td>
<td>Home cooked or take away cooked / reheated thoroughly and use immediately</td>
</tr>
<tr>
<td>Pate</td>
<td>Refrigerated pate or meat spreads</td>
<td>Nil</td>
</tr>
<tr>
<td>Salads (Fruit and vegetables)</td>
<td>Pre-prepared or packaged salads and sprouts (e.g. from salad bars, smorgasbords, supermarkets)</td>
<td>Home made, freshly made, wash thoroughly. Store any leftover in fridge and use within one day of preparation</td>
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<tr>
<td>Starchy foods</td>
<td>Cooled rice, pasta, potato and other grains</td>
<td>Hot rice, pasta, potato and other grains</td>
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<tr>
<td>Seafood</td>
<td>Raw (e.g. oysters, sashimi or sushi) Smoked ready-to-eat, Ready-to-eat peeled cooked prawns (e.g. in prawn cocktail, sandwich filling and prawn salad)</td>
<td>All freshly cooked seafood. Use immediately, store any leftovers in fridge and use within one day of cooking</td>
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<tr>
<td>Cheese</td>
<td>Soft, semi soft and surface ripened cheeses (pre-packaged and deli) (e.g. brie, camembert and blue cheese, fresh or cold ricotta and feta)</td>
<td>Hard cheese (e.g. cheddar, tasty), processed cheese, cheese spreads, plain cream cheese, plain cottage cheese. Cheese packaged by the manufacturer. Cooked ricotta and feta</td>
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<tr>
<td>Ice-cream</td>
<td>Soft serve</td>
<td>Packaged frozen ice-cream</td>
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<tr>
<td>Other dairy products</td>
<td>Unpasteurised dairy products (e.g. raw milk)</td>
<td>All pasteurised milk, yoghurt, custard, dairy desserts</td>
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<tr>
<td>Eggs</td>
<td>Raw or partially cooked, fresh mayonnaise</td>
<td>Fully cooked eggs, not runny (e.g. hard boiled)</td>
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High levels of methyl mercury can damage the nervous system. Babies and young children are particularly vulnerable.

### Recommended intake for Pregnant Women and Women Planning Pregnancy

<table>
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<tr>
<th>Recommended Intake</th>
<th>(1 serve = 150g cooked weight)</th>
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<tbody>
<tr>
<td>2-3 serves per week of any fish and seafood not listed below (e.g. salmon, tuna, flathead, snapper) OR 1 serve per week of Orange Roughy (Sea Perch) or Catfish and no other fish that week OR 1 serve per fortnight of Shark (Flake) or Billfish (Swordfish / Broadbill / Marlin) and no other fish in that fortnight</td>
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### Reflux and heartburn

As the size of your baby increases, space in the mother’s abdominal cavity reduces, putting pressure on the stomach. This pressure may cause reflux.

To reduce the frequency and severity of reflux:

- Avoid eating large amounts at mealtimes and avoid eating late at night.
- Stay upright after meals (e.g. sitting up straight or gentle walking).
- Avoid bending over or lifting after meals.

Before taking any medication for reflux, discuss this with your doctor or pharmacist.

### Constipation

Pregnancy hormones can slow down the muscles that assist bowel movement causing constipation.

To prevent and manage constipation:

- Drink plenty of fluid, especially water.
- Increase dietary fibre (e.g. add extra non-starch vegetables, choose wholegrain bread and cereals).
- Add a natural fibre supplement (e.g. psyllium added to breakfast cereal, Metamucil or Benefibre).
- Maintain regular physical activity.

Before taking any medication for constipation, discuss this with your doctor or pharmacist.
Breastfeeding

Breastfeeding is recommended and can provide all the nutrients and fluid a baby needs until around 4–6 months of age when solid foods can be introduced.

Breastfeeding can continue beyond 6 months as long as mother and child would like to keep going.

Babies who are not breastfed require a commercial infant formula to meet their nutritional needs.

The benefits of breastfeeding include:

- Protection for baby against chest, gut and urinary infections.
- Reduced risk of obesity and diseases such as diabetes later in the baby’s life.
- Weight management for mother.
- Reduced risk of breast and ovarian cancer for mother.
- Reduced cost and preparation time compared to formula feeding.

A mother’s nutritional needs increase when breastfeeding for the following food groups:

**Vegetables | 7.5 serves per day**

1 serve =

- ½ cup
- ½ medium
- 1 cup
- ½ cup

**Bread and Cereals | 9 serves per day**

1 serve =

- 1 slice
- ½ cup cooked
- 2/3 cup
- ½ cup cooked
What happens after I deliver my baby?

Women who have had GDM are at increased risk of:

- GDM in future pregnancy
- type 2 diabetes.

It is recommended you have a repeat OGTT 6–12 weeks after delivery, and then every 1–2 years.

If you are considering another pregnancy, a repeat OGTT should be performed at the first opportunity after conception.

How do I reduce my risk?

To keep yourself healthy and reduce your risk of developing future GDM or type 2 diabetes we recommend:

- Following a healthy balanced eating plan including: vegetables, fruit, wholegrain bread, cereals, lean protein (e.g. meat, poultry, fish, tofu, legumes and eggs), reduced fat dairy and healthy oils (e.g. extra virgin olive oil and nuts).
- Keeping physically active.
- Aiming to achieve and maintain a healthy body weight. Breastfeeding can assist this.

Lifestyle modification programs

WAG (Women After Gestational Diabetes) Program

A free, 5 week (60 minute) program run at Maternal and Child Health centers around Melbourne.

Your baby or young children are also welcome.

Topics include:

- Healthy eating for busy mums, including cooking demo.
- Practical ways to increase your physical activity.
- Managing stress and staying motivated.

Email wags@baker.edu.au for details.

Life! program | Helping you prevent diabetes, heart disease and stroke

The Life! program is a free lifestyle modification program that helps you reduce your risk of type 2 diabetes and cardiovascular disease.

The program is delivered as a group course or a telephone health coaching service.

www.diabeteslife.org.au
Target before breakfast = 5mmol/L or less
Target 2 hours after meals = 6.7mmol/L or less
Report levels that exceed targets on x2 test times over a week
BGL = Blood Glucose Level  

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<tr>
<th>Date</th>
<th>BGL</th>
<th>Breakfast</th>
<th>BGL</th>
<th>Morning tea</th>
<th>Lunch</th>
<th>BGL</th>
<th>Afternoon tea</th>
<th>Dinner</th>
<th>BGL</th>
<th>Supper</th>
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Contact with my diabetes team

You will be required to send your GDM records to your Diabetes Nurse Educator and Dietitian weekly. This can be done via email, scan, fax or telephone.

You will be required to send you records prior to midday on:

Monday   Tuesday   Wednesday   Thursday   Friday

If your Dietitian has received adequate information with your food records, these records may be stopped at the discretion of your Dietitian.

You will need to monitor your BGLs throughout the whole pregnancy, even if your BGLs are within target. BGLs can suddenly change and we need to be able to monitor this.

Notes